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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,435	03/25/2004	Alexander P. Payne	10021.002510 (P0309)	1489
31894	7590	09/19/2005	EXAMINER	
OKAMOTO & BENEDICTO, LLP P.O. BOX 641330 SAN JOSE, CA 95164			THOMAS, BRANDI N	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,435	<b>Applicant(s)</b> PAYNE ET AL.	
	<b>Examiner</b> Brandi N. Thomas	<b>Art Unit</b> 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/13/04</u> | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u>                   |

## DETAILED ACTION

### *Information Disclosure Statement*

1. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 12/13/04. An initialed copy is attached to this Office Action.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maheshwari (6829077 B1).

Regarding claim 1, Maheshwari discloses, in figures 1 and 2A, a light modulator (13), comprising: a plurality of modulator elements (15) arranged substantially parallel (figure 1), wherein: each modulator element (15) includes: an optically active area (second edge) (col. 4, lines 24-27); and a support portion (posts 14 and 16) on either side of the optically active portion (second edge) (col. 3, lines 62-64 and col. 4, lines 21-24) but does not specifically disclose wherein the optically active portion has a narrower width than the support portion. However, it would have been obvious to fabricate the invention to include wherein the optically active portion has a narrower width than the support portion, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (*In re Rose*, 105 USPQ 237 (CCPA 1955)).

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Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the invention to include wherein the optically active portion has a narrower width than the support portion for the purpose of having a smaller area in which light is capable of impinging.

Regarding claim 2, Maheshwari discloses, in figures 1 and 2A, a light modulator (13), wherein the optically active portion remains substantially flat while deflected (figure 2A) (col.4, lines 31-36).

Regarding claim 3, Maheshwari discloses, in figures 1 and 2A, a light modulator (13), wherein the optically active portion further includes upper and lower surface areas having substantially equal optical energies (col. 4, lines 51-58).

4. Claims 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maheshwari (6829077 B1) in view of Hornbeck (4441791).

Regarding claim 8, Regarding claim 1, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13) capable of light modulation, the device comprising: an optically active area (second edge) that is reflective and configured to be illuminated (col.4, lines, 24-27 and 41-47); a non-optically active portion (first edge) between the optically active portion (second edge) and the support structure (post 14 and 16) (col. 3, lines 62-64); and a plurality of gaps in the optically-active portion (second edge) (col. 3, lines 64-66) but does not specifically disclose a membrane. Hornbeck discloses the use of a membrane in a light modulator (col. 2, lines 24-30 and col. 5, lines 39-44). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of

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Maheshwari with the membrane of Hornbeck for the purpose of defining a deformable mirror (col. 2, lines 24-30 and col. 5, lines 39-44).

Regarding claim 9, Hornbeck discloses, in figures 1-4, a micro electromechanical system (MEMS) device, further comprising: a substrate (10) below the membrane having reflective areas under the plurality of gaps (col. 5, lines 39-49).

Regarding claim 10, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), including an optically active area (second edge) (col. 4, lines 24-27) and a non-optically-active portion (first edge) (col. 4, lines 21-24) but does not specifically disclose wherein the non-optically-active membrane portion (first edge) is larger in area than the optically active portion membrane portion. However, it would have been obvious to fabricate the invention to include wherein the non-optically-active membrane portion (first edge) is larger in area than the optically active portion membrane portion, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being with the level of ordinary skill in the art (In re Rose, 105 USPQ 237 (CCPA 1955)). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the invention to include wherein the non-optically-active membrane portion (first edge) is larger in area than the optically active portion membrane portion for the purpose of having a smaller area in which light is capable of impinging.

Regarding claim 11, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), wherein the optically-active membrane portion

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(first edge) bends less than the non-optically-active membrane portion when the membrane is controllably deflected (col. 4, lines 59-66).

Regarding claim 12, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), wherein the optically active membrane portion remains substantially flat when the membrane is controllably deflected (figure 2A) (col.4, lines 31-36).

Regarding claim 13, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), wherein the gaps in the optically-active membrane portion (second edge) are configured so that substantially equal optical energies are reflected from the membrane and from the substrate below the membrane (col. 4, lines 51-58).

Regarding claim 14, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), wherein the gaps in the optically-active membrane portion (second edge) and the reflective areas (22) under the gaps are covered with a same reflective material (col. 4, lines 15-21).

Regarding claim 15, Maheshwari discloses, in figures 1 and 2A, a micro electromechanical system (MEMS) device (13), wherein the reflective material (22) comprises aluminum (col. 4, lines 16-19).

Regarding claim 16, Hornbeck discloses a micro electromechanical system (MEMS) device, wherein the membrane comprises a compliant material from a group of compliant materials including polymeric materials, metals, polycrystalline materials, and amorphous materials (col. 2, lines 34-38).

*Allowable Subject Matter*

5. Claims 4-7 are allowed.
6. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 4-7, wherein the claimed invention comprises a released membrane portion surrounding the circular optically active portion, wherein: the substantially circular optically active includes a plurality of gaps configured to expose a lower surface, as claimed.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

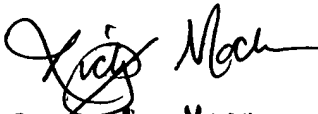
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RICKY L. MACK  
PRIMARY EXAMINER